Publications :: Synthesis

1. Extensible Program Synthesis

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2. AutoBayes: Synthesis of Data Analysis Software

Bernd Fischer, Johann Schumann, **"Applying AutoBayes to the Analysis of Planetary Nebulae Images (Extended Abstract),"** Proc. ASE 2003: 18th IEEE Conf. on Automated Software Engineering, Montreal, Canada, pp. 337-342, Oct. 6-10, 2003.
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Bernd Fischer, Johann Schumann, **"AutoBayes: A System for Generating Data Analysis Programs from Statistical Models,"** Journal of Functional Programming vol. 13, no. 3, pp. 483-508, May 2003.
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3. AutoFilter: Synthesis of State Estimation Software

Jon Whittle, Johann Schumann, **"Automating the Implementation of Kalman Filter Algorithms,"** TOMS: ACM Transactions on Mathematical Software, vol. 29, issue 5, Dec. 2004, to appear.
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4. UML Synthesis

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Jon Whittle, Johann Schumann, **"Scenario-Based Engineering of Multi-Agent Systems,"** Chr. Rouff, ed., Formal Approaches to Agent Design, Springer, to appear.
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5. Certifiable Synthesis

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Grigore Rosu, Jon Whittle, **"Towards Certifying Domain-Specific Properties of Synthesized Code -Extended Abstract-,"** Proc: ASE'02: 17th IEEE Int'l Conf. on Automated Software Engineering, Edinburgh, UK, pp. 289-294, Sep. 23-27, 2002.
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Michael Whalen, Johann Schumann, Bernd Fischer, **"AutoBayes/CC- Combining Program Synthesis with Automatic Code Certification -System Description-,"** Proc. CADE-18: Conf. on Automated Deduction, Springer LNCS, vol. 2392, Copenhagen, Denmark, pp. 290-294, July 27-30, 2002.
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Copenhagen, Denmark, pp. 431-450, July 22-24, 2002.
[paper (**PDF, 325K**)]

Johann Schumann, **"Automatic Synthesis of Safety-Related Software -Short Paper-,"** ACM SIGSOFT Software Engineering Notes, vol. 29, issue 2, pp. 105-108, Mar. 2002.
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6. Amphion: Synthesis of Planetary Software and Animations, and Theory Compilation

For Educators

This paper describes an application of Amphion to support educational web sites.

For planetary scientists:

This paper describes an extension of Amphion/NAIF that generates science-opportunity visualizations.

This is the basic Amphion/NAIF paper.

For computer scientists:

These papers describe deductive synthesis, the domain theory, the user interface, and the architecture of the system.

This paper describes an extension that generates interactive search programs.

This paper describes Amphion's text-based interface and summarizes the main concepts behind the client-server version of Amphion.

These papers describe automated compilation of domain theories.

This paper describes component understanding and reuse in the context of the NAIF libraries and Amphion.

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7. Miscellaneous

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